



Infrastructure, buildings, environment, communications

ARCADIS G&M, Inc.
1400 N. Harbor Blvd., Suite 700
Fullerton, California 92835
Tel 714 278 0992
Fax 714 278 0051

ENVIRONMENTAL

Date:
November 24, 2003

Contact:
James K. Nguyen, P.E.

Extension:
3026

Email:
jnguyen@arcadis-us.com

Project No
CA000594.0003.00004

ATTN: Information Technology Unit
California Regional Water Quality Control Board
Los Angeles Region (RWQCB)
320 West 4th Street, Suite 200
Los Angeles, California 90013

Subject:
October 2003 Monthly Discharge Report
Waste Discharge Requirements Order Number R4-2002-0030 (Series 007)
Compliance File Number CI-95-036, SLIC 0410
Project Site: Former Boeing C-6 Facility, Los Angeles, California

Dear Information Technology Unit:

On behalf of Boeing Realty Corporation (BRC), ARCADIS is submitting this monthly monitoring report per the Waste Discharge Requirements (WDR) Order Number R4-2002-0030 (Series 007). The purpose of this report and future WDR reports is to provide the Los Angeles Regional Water Quality Control Board (RWQCB) with injection and monitoring activities at the referenced project site. The site is located at 19503 Normandie Avenue. Figures 1 and 2 illustrate the site location and the site layout, respectively.

This monthly monitoring report for October 2003 summarizes baseline groundwater monitoring and sampling activities conducted prior to carbohydrate injection at the former Building 2 Area. The sections below discuss groundwater monitoring and sampling activities and provide field and analytical data for the baseline sampling event. Carbohydrate injection was not conducted during this reporting period.

1.0 Baseline Monitoring Activities

The purpose of this monitoring event was to obtain baseline groundwater data prior to the addition of carbohydrate solution to the groundwater. Eleven (11) monitoring wells and two (2) amendment points were gauged and sampled. These wells included: IRZMW001A/B, IRZMW002A/B, IRZMW003A/B, IRZMW004, IRZMW005, IRZCMW001, IRZCMW002, IRZCMW003, CMW001, CMW002, CMW026, IRZB0081, and IRZB0095 (Figure 2). The monitoring wells were sampled for parameters specified in the WDR permit and listed in Tables 1 through 4. The baseline-monitoring event was conducted on October 7, 8, and 9, 2003.

ARCADIS

November 24, 2003

Monitoring wells IRZMW001A/B, IRZMW002A/B, and IRZMW003A/B were re-developed on October 13 or 14, 2003 due to the presence of fines and silts in the wells. These three dual-nested wells were re-sampled on October 30 and 31, 2003. Monitoring well CMW002 was re-sampled for permanent gases (dissolved oxygen, carbon dioxide, nitrogen, nitrate, ethane, and ethane) on October 30, 2003.

Prior to collecting groundwater samples, depth to groundwater was measured in each well by using a water level meter accurate to 0.01 feet. Groundwater samples were collected with low flow sampling techniques so that the purge rate was generally less than 250 milliliters per minute (mL/min) and that drawdown while purging was less than 1 foot. At some well locations, the purge rate was increased to greater than 250 mL/min and less than 550 mL/min in order to maintain a constant flow rate.

The sampling methodology also involved use of a flow-through cell that houses field instrumentation used to collect groundwater stabilization parameters (i.e., temperature, pH, specific conductance, oxygen reduction potential, etc.). For each well, the flow-through cell was connected to a submersible pump with dedicated polyethylene tubing. Once the field parameters stabilized, groundwater samples were collected in laboratory prepared containers. Field parameter data as well as other relevant sampling data were documented on sample collection logs when sampling.

The groundwater samples were transported in a chilled ice chest with chain-of-custody documentation to the laboratories (Severn Trent Laboratories, Inc., Santa Ana, California or VaporTech Services, Inc., Valencia, Pennsylvania). The laboratory and permanent gas analyses were conducted at a laboratory certified for such analyses by the State of California and in accordance with current U.S. EPA procedures or as specified in the Monitoring and Reporting Program outlined in the WDR permit.

2.0 Baseline Monitoring Results

Field parameter data and analytical results from the baseline-sampling event are summarized in Tables 1 through 4. Laboratory analytical data with associated chain-of-custody documentation are presented in Appendix A. Sample collection logs with field parameter and monitoring well sampling data are maintained in the project files.

ARCADIS

LA Regional Water Quality
Control Board,
Information Technology Unit

November 24, 2003

3.0 Certification Statement

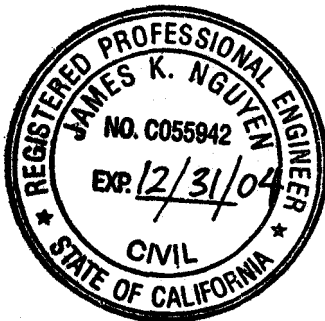
I declare under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed the system or those directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

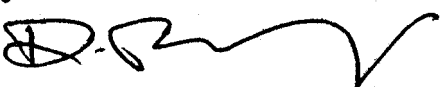
If you have any questions or comments regarding this monitoring report, please contact Jim Nguyen or David Poley at (714) 278-0992.

Sincerely,

ARCADIS G&M, Inc.


James K. Nguyen, P.E.
Project Manager




David G. Poley
Project Scientist

Copies:

Robert Scott, Boeing
Scott Zachary, Haley & Aldrich
Project File

Enclosures:

Tables: 1 – Field Parameter Results
2 – Inorganic Analytical Results
3 – Volatile Organic Compound Results
4 – Permanent Gas Results
Figures: 1 – Site Location Map
2 – Amendment Point and Monitoring Well Location
Appendix A – Laboratory Reports and Chain-of-Custody Documents

ARCADIS

Tables

**Table 1. Field Parameter Results
Former Building 2 Area, Former Boeing C-6 Facility**

Well Number	Screened Zone	Well Group	Sample Date	Depth to Water (feet)	pH	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Temperature (°C)	Specific Conductance (mS/cm)	Ferrous Iron (mg/L)	Hydrogen Sulfide (mg/L)
IRZB0081	Zone B	A	10/9/2003	64.53	6.71	5.11	144.4	21.56	1,563	Too Silty	Too Silty
IRZB0095		A	10/7/2003	64.59	7.00	5.62	83.7	23.09	1,435	1.3	0.0
IRZMW001A		A	10/30/2003	68.05	6.68	4.79	245.9	21.85	2,354	0.0	0.0
IRZMW001B		A	10/30/2003	67.98	6.83	6.20	159.6	21.83	1,254	1.0	0.0
IRZMW002A		A	10/30/2003	67.98	6.80	3.14	-140.7	22.06	1,852	2.0	5.0
IRZMW002B		A	10/30/2003	68.07	6.78	4.10	110.3	21.73	1,125	Too Silty	Too Silty
IRZMW005		A	10/9/2003	64.44	7.13	5.33	40.8	21.64	1,591	0.0	0.0
IRZMW003A		B	10/31/2003	68.21	6.77	4.03	210.3	25.67	1,761	Too Silty	Too Silty
IRZMW003B		B	10/31/2003	68.24	6.82	4.98	280.4	23.28	1,154	Too Silty	Too Silty
IRZMW004		C	10/7/2003	64.84	7.00	4.76	152.9	22.52	1,449	0.0	0.0
CMW026	Zone C	A	10/7/2003	63.38	7.15	4.51	34.0	22.31	965	0.0	0.0
IRZCMW003		B	10/7/2003	63.58	7.20	2.73	133.5	22.78	951	0.0	0.0
IRZCMW002		C	10/8/2003	67.78	6.98	2.37	188.5	21.44	888	0.0	0.0
CMW001		C	10/9/2003	66.81	6.80	2.59	-120.00	23.29	948	0.0	0.5
CMW002		C	10/8/2003	65.29	6.91	2.17	51.4	22.95	788	0.0	0.0
IRZCMW001		D	10/8/2003	63.65	7.13	4.22	183.0	21.66	1,219	0.0	0.0
EPA Analytical Method				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

Group A: wells located within the estimated injection area

Group B: wells located at the estimated edge of the injection area

Group C: wells located downgradient of the treatment area

Group D: wells located upgradient of the treatment area

mg/L - milligrams per liter

mV - millivolts

°C - degrees Celsius

mS/cm - millisiemens per centimeter

NA - Not applicable

**Table 2. Inorganic Analytical Results
Former Building 2 Area, Boeing C-6 Facility**

Well Number	Screened Zone	Well Group	Sample Date	Bromide (mg/L)	Chloride (mg/l)	Total Iron (mg/L)	Dissolved Manganese (mg/L)	Total Manganese (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
IRZB0081	Zone B	A	10/9/2003	0.94	348	25.00	0.05	1.40	8.50	<1.0	43.8	5.8
IRZB0095		A	10/7/2003	0.85	320	3.30	0.05	0.78	7.20	<1.0	38.6	3.0
IRZMW001A		A	10/30/2003	3.6	615	6.8	0.019	0.24 J	13.6	<1.0	88.6	5.0
IRZMW001B		A	10/30/2003	0.73	218	2.9	0.020	0.090 J	5.8	<0.50	98.0	3.8
IRZMW002A		A	10/30/2003	2.3	444	13.4	3.6	3.7 J	0.13	<1.0	77.8	21.8
IRZMW002B		A	10/30/2003	0.94	220	11.7	0.15	0.31 J	6.9	0.21 B	80.9	4.1
IRZMW005		A	10/9/2003	0.97	358	25.00	0.05	1.40	8.50	<1.0	43.8	3.9
IRZMW003A		B	10/31/2003	1.1	465	5.6	0.0069 B	0.11 J	9.6	<1.0	48.3	2.6
IRZMW003B		B	10/31/2003	0.69	240	8.1	0.051	0.23 J	6.3	<0.50	77.9	3.8
IRZMW004		C	10/7/2003	0.89	338	4.80	0.01	0.30	8.10	<1.0	41.2	3.1
CMW026	Zone C	A	10/7/2003	0.55	215	1.70	0.01	0.09	2.80	<1.0	34.2	2.0
IRZCMW003		B	10/7/2003	0.51	191	1.10	0.02	0.16	1.60	<1.0	49.8	2.0
IRZCMW002		C	10/8/2003	0.37	150	0.23	0.10	0.04	2.50	<0.50	62.5	3.2
CMW001		C	10/9/2003	0.97	358	2.50	0.02	0.10	8.60	<1.0	41.6	3.9
CMW002		C	10/8/2003	0.24	110	0.63	0.21	0.13	ND	<0.50	84.9	8.0
IRZCMW001		D	10/8/2003	0.73	275	1.90	0.01	0.04	2.70	<1.0	37.7	3.3
EPA Analytical Method				300.0A	300.0A	6010B	6010A	6010B	300.0A	300.0A	300.0A	9060

Notes:

Group A: wells located within the estimated injection area

Group B: wells located at the estimated edge of the injection area

Group C: wells located downgradient of the treatment area

Group D: wells located upgradient of the treatment area

<1.0 - Not detected above indicated reporting limit

J - Method blank contamination. The method blank contains the target analyte at a reportable level.

B - estimated result less than reporting limit

**Table 3. Volatile Organic Compound Analytical Results
Former Building 2 Area, Boeing C-6 Facility**

Well Number	Screened Zone	Well Group	Sample Date	Acetone (lb/L)	Chlorobenzene (lb/L)	Chloroform (lb/L)	1,1-DCA (lb/L)	1,1-DCE (lb/L)	cis-1,2-DCE (lb/L)	Methylene Chloride (lb/L)	Trichloroethene (lb/L)	Vinyl Chloride (mg/L)
IRZB0081	Zone B	A	10/9/2003	<1,700	<170	50 J	<170	63 J	<170	<170	6,500	<170
IRZB0095		A	10/7/2003	<1,200	<120	150	<120	49 J	<120	150	5,800	<120
IRZMW001A		A	10/30/2003	<5,000	<500	<500	<500	<500	<500	<500	11,000	<500
IRZMW001B		A	10/30/2003	<1,200	<120	<120	<120	50 J	54 J	<120	4,800	<120
IRZMW002A		A	10/30/2003	<1,200	<120	<120	<120	63 J	660	<120	5,100	<120
IRZMW002B		A	10/30/2003	73 JB	<12	<12	<12	8.5 J	80	<12	640	<12
IRZMW005		A	10/9/2003	<1,700	<170	56 J	<170	75 J	<170	<170	6,000	<170
IRZMW003A		B	10/31/2003	3,200 JB	<500	<500	<500	180 J	<500	<500	20,000	<500
IRZMW003B		B	10/31/2003	130 JB	<25	<25	<25	19 J	<25	<25	1,000	<25
IRZMW004		C	10/7/2003	<2,500	<250	110 J	<250	81 J	<250	<250	8,700	<250
CMW026	Zone C	A	10/7/2003	<250	<25	21 J	<25	65	<25	<25	1,200	<25
IRZCMW003		B	10/7/2003	<1,000	<100	36 J	<100	83 J	<100	89 J	2,900	<100
IRZCMW002		C	10/8/2003	<1,000	<100	36 J	<100	39 J	<100	<100	4,600	<100
CMW001		C	10/9/2003	<1,200	7,300	60 J	<120	<120	<120	<120	<120	<120
CMW002		C	10/8/2003	<1,000	3,600	<100	<100	<100	<100	<100	460	<100
IRZCMW001		D	10/8/2003	210 J	<62	76	13 J	350	22 J	<62	1,300	<62
EPA Analytical Method				8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B	8260B

Notes:

Group A: wells located within the estimated injection area
Group B: wells located at the estimated edge of the injection area
Group C: wells located downgradient of the treatment area
Group D: wells located upgradient of the treatment area
DCA - dichloroethane
DCE - dichloroethene
< - not detected above indicated reporting limit
J - estimated result less than reporting limit
JB - acetone detected at 11 ¶g/L in trip blank
¶g/L - micrograms per liter

**Table 4. Permanent Gas Analytical Results
Former Building 2 Area, Boeing C-6 Facility**

Well Number	Screened Zone	Well Group	Sample Date	Dissolved Oxygen (mg/L)	Carbon Dioxide (mg/L)	Nitrogen (mg/L)	Methane (Îg/L)	Ethane (ng/L)	Ethene (ng/L)
IRZB0081	Zone B	A	10/9/2003	3.70	16.9	12.6	<0.2	60	110
IRZB0095		A	10/7/2003	2.67	14.0	8.7	<0.2	50	80
IRZMW001A		A	10/30/2003	1.16	27.4	10.0	2.9	72	51
IRZMW001B		A	10/30/2003	4.05	21.2	12.4	0.4	38	23
IRZMW002A		A	10/30/2003	0.62	39.1	8.7	4.0	1,172	3,250
IRZMW002B		A	10/30/2003	3.38	16.6	16.1	6.0	1,344	2,051
IRZMW005		A	10/9/2003	4.97	16.3	14.0	<0.2	60	70
IRZMW003A		B	10/31/2003	3.06	25.3	15.6	0.5	169	96
IRZMW003B		B	10/31/2003	3.65	18.4	11.5	0.7	87	81
IRZMW004		C	10/7/2003	2.74	15.3	8.4	0.3	50	60
CMW026	Zone C	A	10/7/2003	2.47	6.7	14.8	0.9	520	40
IRZCMW003		B	10/7/2003	1.11	7.1	12.1	1.6	950	880
IRZCMW002		C	10/8/2003	0.94	7.2	15.2	0.6	430	1,210
CMW001		C	10/9/2003	1.74	9.1	13.4	4.8	1,540	2,340
CMW002		C	10/8/2003	2.48	11.4	16.1	0.9	141	1041
IRZCMW001		D	10/8/2003	3.10	13.2	14.9	0.3	110	180
Analytical Method				RSK 175	RSK 175	RSK 175	RSK 175	RSK 175	RSK 175

Notes:

Group A: wells located within the estimated injection area

Group B: wells located at the estimated edge of the injection area

Group C: wells located downgradient of the treatment area

Group D: wells located upgradient of the treatment area

mg/L - milligrams per liter

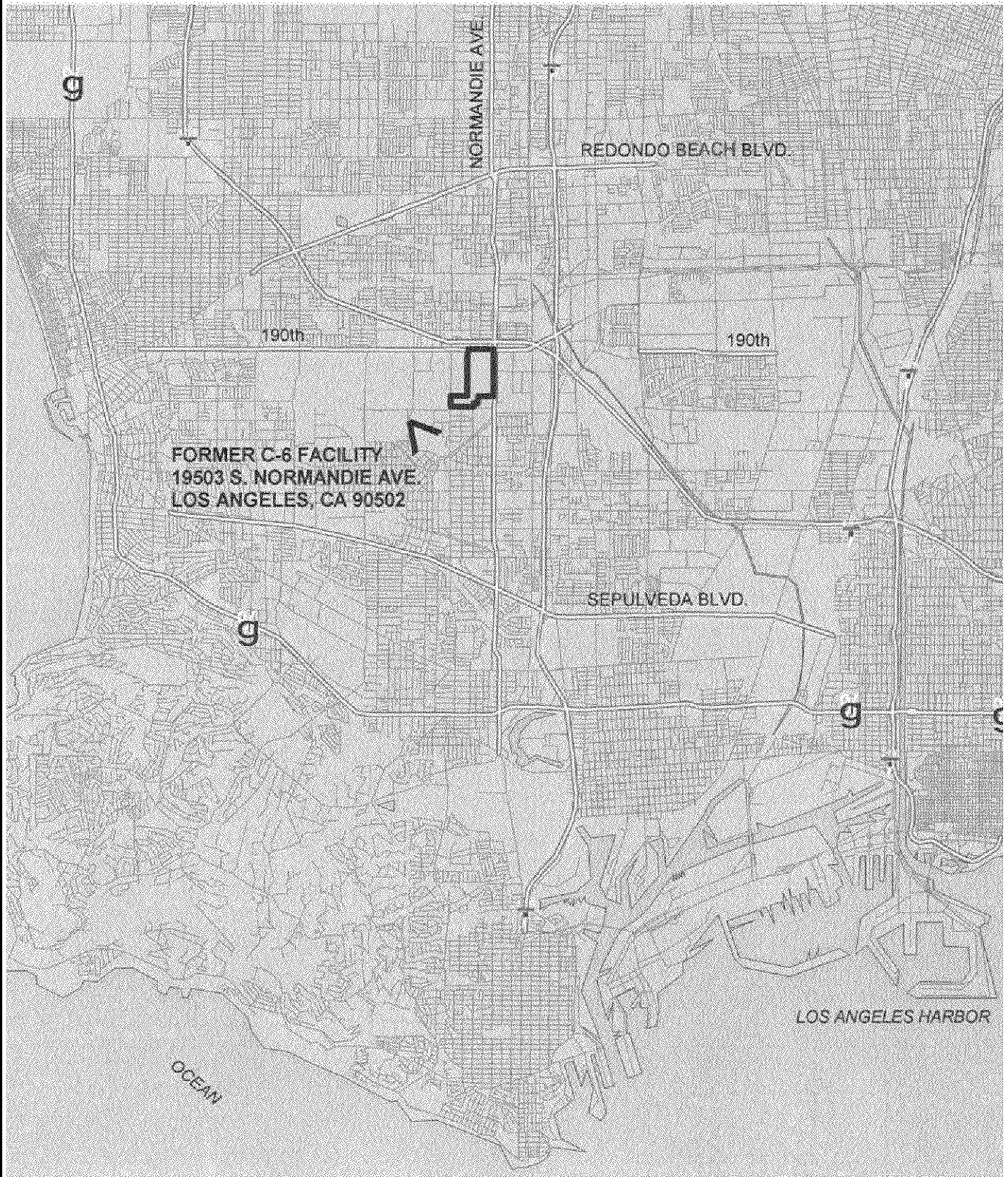
µg/L - micrograms per liter

ng/L - nanograms per liter

<0.2 - Not detected above indicated reporting limit

ARCADIS

Figures



Base map download from 'Tiger File' data website hosted by ESRI.

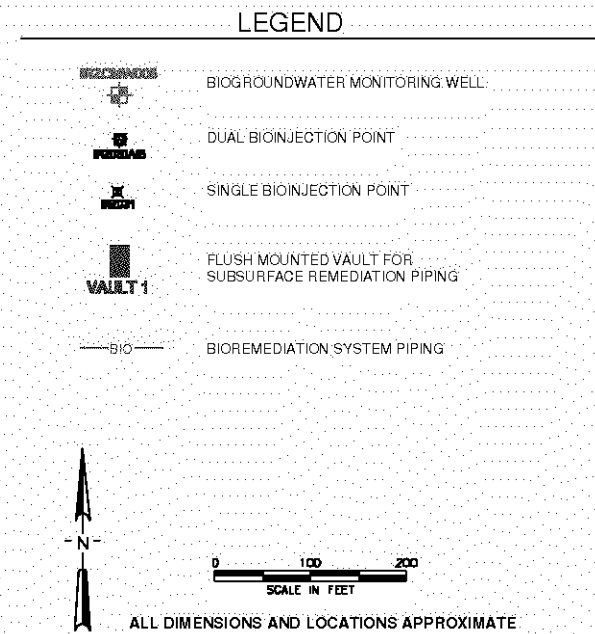
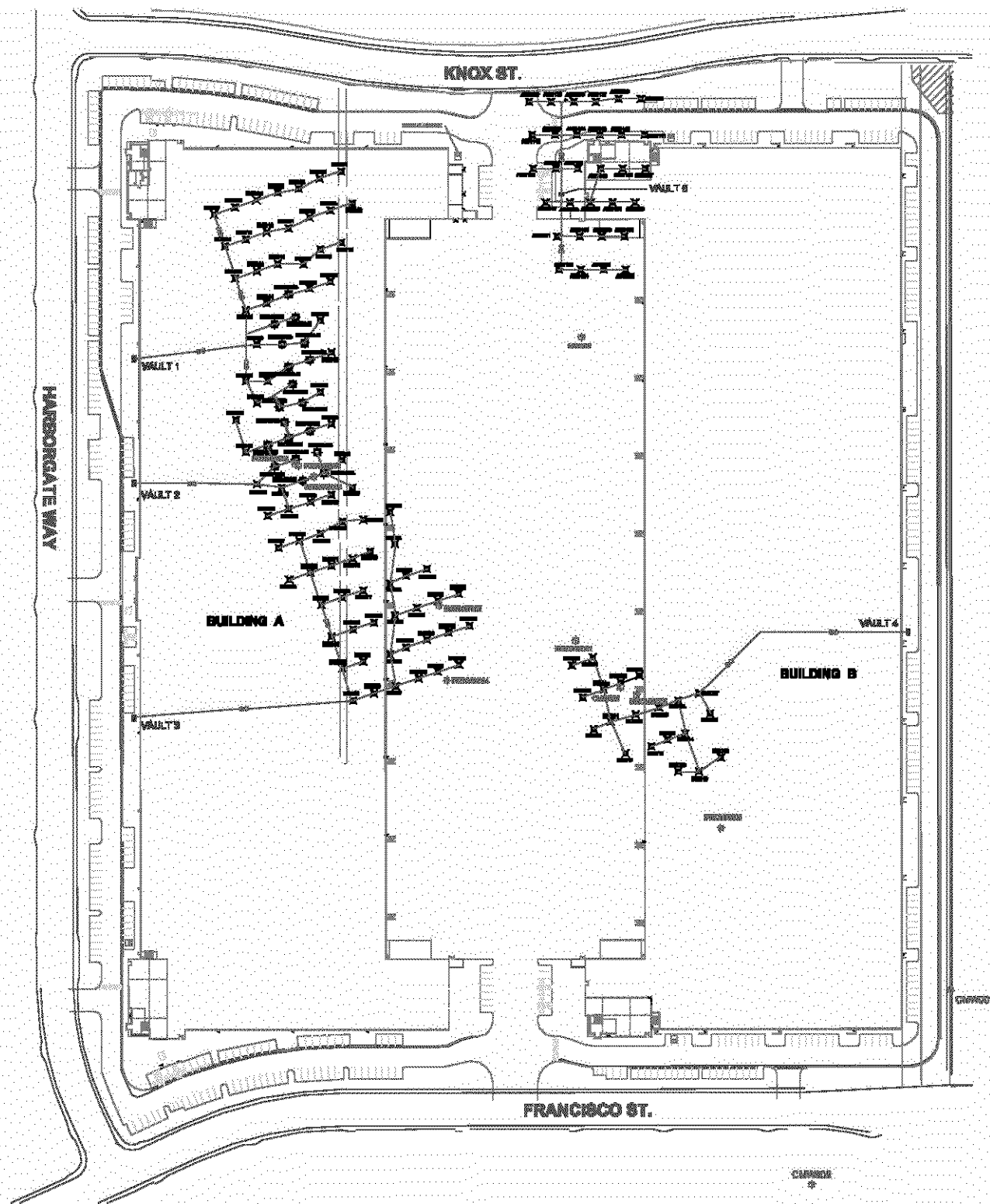


SITE LOCATION

BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

FIGURE

1



AMENDMENT POINT AND MONITORING WELL LOCATIONS

BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

FIGURE

2

ARCADIS

Appendix A

**Laboratory Reports
and Chain-of-Custody
Documents**

(Included w/hardcopy reports)